FAA | AVIATION NEWS

DECEMBER 1965

F E D E R A L A V I A T I O N A G E N C Y

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FAA | AVIATION NEWS

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VOL. 4, NO. 8 DECEMBER 1965

COVER

The MU-2 turboprop, built by Mitsubishi of Japan and assembled by Mooney for the American executive market was certificated last month by the Federal Aviation Agency.

FAA AVIATION NEWS is published monthly by the Office of Information Services, Federal Aviation Agency, Washington, D. C., 20553, in the interest of aviation safety and to acquaint readers with the policies and programs of the Agency. The use of funds for printing **FAA AVIATION NEWS** was approved by the Director of the Bureau of the Budget, July 14, 1965.

Subscription rates: U.S. $1.50 a year, foreign $2.00 a year, single copies 15 cents. Send check or money order (no stamps) as well as address changes to Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402.

In requesting a change of address, subscribers should include the mailing label from any issue to facilitate the change.

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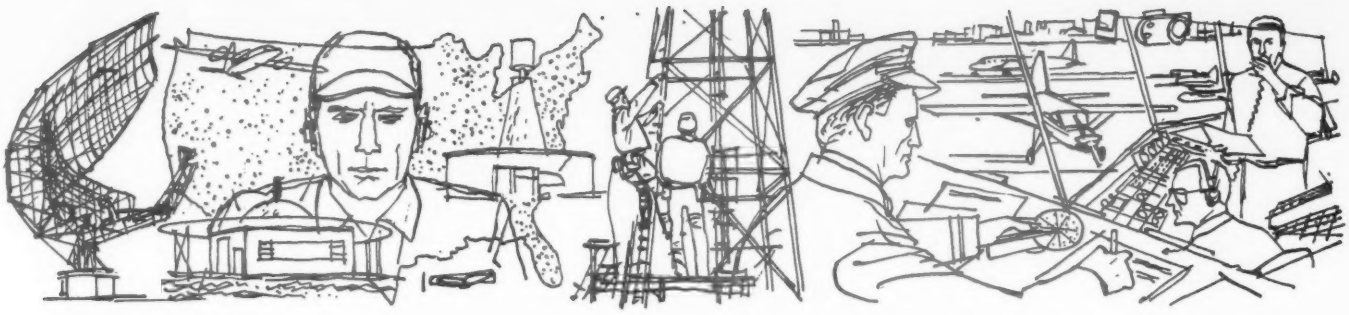


AIRWORTHINESS CERTIFICATION STANDARDS WILL BE REVISED

Numerous changes are anticipated from a review of general aviation airworthiness certification standards now under way by the FAA to keep the *Federal Aviation Regulations* up to date.

The Agency held five days of conferences this fall with representatives of the Aerospace Industries Association, Aircraft Owners and Pilots Association, National Business Aircraft Association, individual aircraft manufacturers, and such Government agencies as NASA, CAB, and the Department of Defense. Observers from seven foreign countries attended the conferences.

Under the spotlight were the airworthiness regulations of Parts 21 and 23 of the *FARs* relating to type certification of normal, utility, and acrobatic airplanes. The areas of discussion were:

- Flight
- Propulsion
- Airframes
- Systems and equipment
- General

"It is essential for all concerned," FAA spokesman William H. Weeks told the conference, "that the FAA regulations reflect the present state of the art." He said the conference was "responsive to the needs expressed by the industry for periodic review of the airworthiness regulations affecting nontransport category airplanes."

Recommendations Expected Next Spring

The various views presented at the conference are now under study by FAA experts who expect to come up with recommendations for a *Notice of Proposed Rule Making* next spring. Normally, such notices give the public and the industry from 60 to 90 days to comment on the proposals. The FAA then will take these comments into consideration before preparing the final draft of amendments to the *FARs*.

New regulations growing out of the current review may be expected late in 1966.

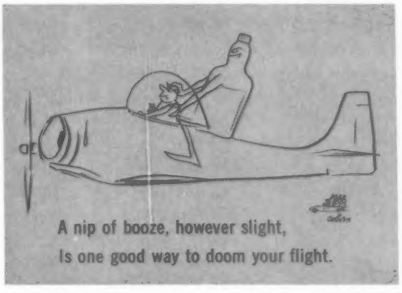
Flight. The subject of flight was broken down into some 20 subtopics with particular interest shown to stalls—stalling speed, stall characteristics, stall demonstrations, and the pilot skill required for such demonstrations. Other topics highlighted in this category included flight characteristics, climb with one engine inoperative, and the airplane flight manual.

Propulsion. Highlighted topics in the area of propulsion included propeller clearance, air induction systems, carburetor air temperature controls, fuel system independence and shutoff means, fuel tank vents, and carburetor vapor vents.

Airframes, systems, and equipment. Sessions on these subjects covered the problems of gust loads, structural fatigue requirements, design dive speed and speed margins, emergency exits, installation of electrical equipment, pressurized cabins, and lightning protection.

General. The general subjects involved requirements for supplemental type certification and related privileges, maximum operating altitudes, and procedures for approval of supercharger installation.

Propose Eight Hours Between 'Bottle and Throttle'



A nip of booze, however slight,
Is one good way to doom your flight.

Pilots and other crewmembers would be required to wait at least eight hours after drinking alcoholic beverages before operating an aircraft, under a new rule proposed last month by the Federal Aviation Agency.

Measurable blood alcohol has been found in some of the autopsies performed on general aviation pilots fatally injured in airplane accidents. It has been found that even small amounts of alcohol can affect flying judgment, coordination, performance, and reaction time. Altitude accentuates the effects of alcohol, which can linger even after the alcohol itself has left the bloodstream.

Current Rules Inadequate

FAA's experience indicates that current rules, while they prohibit the operation of an aircraft by pilots who are under the influence of liquor, are inadequate and difficult to enforce.

Most of the public comments received when the Agency first announced it was considering rule-making on this problem favored strengthening the regulations against drinking. Of those endorsing such action, most recommended establishing a specific time limit between drinking and flying. Careful consideration was given by the Agency to the various time limits proposed. The conclusion was reached that eight hours was appropriate for purposes of deterrence and enforcement, and that this time period could be considered as a minimum beyond which safety would be jeopardized.

In considering an eight-hour prohibition period, the Agency makes it clear that such a proposal is not intended to encourage relaxation of much stricter company rules which are imposed by air carriers and other aircraft operators.

Target Area Small

The Agency further points out that while the proposed additional regulation against drinking would apply to all pilots of civil aircraft, it is aimed mainly at a small group of pilots and is not intended to indict pilots and other crewmembers as a whole.

Public comments on the proposal (Docket No. 6747; Notice No. 65-34) should be submitted in duplicate before Jan. 10, 1966, to FAA, Office of the General Counsel, Attention: Rules Docket, 800 Independence Ave., S. W., Washington, D. C. 20553.

GENERAL AVIATION IN U.S. PLEASES AUSTRALIAN

The Australian counterpart of the FAA's Flight Standards Service director has been flying in the United States so long that his most recent letter from his wife began "Yank come home!"

Though Laurence P. Bond, superintendent of Flight Crew Standards "Down Under," still doesn't *sound* like a Yank to a Yank, he has picked up an impressive amount of information in his five-month study of light aircraft operations and the light aircraft industry in the United States.

In reciting his experiences flying more than a dozen kinds of small aircraft in and out of all types of U.S. airports, he speaks knowledgeably about the problems of Alaska, the mosquitoes of the Everglades, and the financial hazards of landing in Nevada where gambling devices are so legal and so available.

An experienced pilot with more than 7,000 hours logged in civilian and military aircraft in Australia, Bond, now in the regulatory side of the business, has been very impressed with the U.S. emphasis on education rather than regulation.

Bond praised the excellent system of navigation aids in the United States, but pointed out that terrain and weather conditions presented greater problems here than in Australia. Further, he said that his experience here would be "of great value in reviewing flight standards" when he returns to Australia.

"You have a really fine organization of flight service stations which give remarkably good service," Bond said. "Weather reports, for example, are a most valuable contribution to flight service and safety."

Australia's Laurence P. Bond

While generous in his praise for the whole American flying community, he singled out fixed base operators who give "first class service and contribute to the development of general aviation by making it so easy for people to fly." He also had high praise for the aircraft manufacturers and for the industry associations, and he expressed appreciation for the assistance he had been given by all levels of the FAA, including the general aviation district offices and the hundreds of other Flight Standards and Air Traffic Service people he contacted in many parts of the country.

ATA, ALPA Ask FAA to Revise Rules on Sport Parachuting

The adequacy of FAA rules on sport parachute jumping were questioned last month at a hearing in Washington.

Prompted by the Air Transport Association (ATA) and the Air Line Pilots Association (ALPA), the hearing was held to enable FAA to gather full information on whether jumpers should be prohibited from diving into controlled airspace. Under current rules, parachute activity in controlled airspace is permitted if air traffic control is notified at least six hours in advance. When jumping is planned at an airport without an FAA tower, the airport manager is to be notified.

Some 100 persons representing more than a dozen organizations presented varying points of view. Joining ATA and ALPA in calling for revision were the Airline Dispatchers Association, Air Traffic Control Association, and the American Association of Airport Executives.

The Parachute Club of America (PCA) contended that present rules are generally satisfactory and administrative changes can be made within the framework of the present rules if any changes are needed. Supporting the PCA were groups like the Aircraft Owners and Pilots Association, the National Association of State Aviation Officials, National Pilots Association, and various other groups including parachute clubs.

Several speakers recommended that the Federal Aviation Agency consider establishing jump zones that would be noted on aeronautical charts.

FAA Recovers $142,540 from Manufacturer in Unique Contract Arrangement

For the first time a civilian agency of the Federal Government has recovered its entire cost of developing a device produced under Government contract by a private manufacturer and sold to the public.

The Federal Aviation Agency has accepted $142,540 from the Wilcox Electric Co. of Kansas City, Mo. The payment represented FAA's total cost of developing a general aviation transponder, an electronic device that identifies airplanes for air traffic control.

The payment was made under a "recovery of development costs" clause in the Wilcox contract, a method employed to recover FAA funds used in the development of commercially salable products. FAA's contract with Wilcox that contained this clause was for $67,040. The balance of $75,500 which Wilcox paid the Government represented other FAA program costs.

Transponders are electronic devices installed in airplanes which automatically "answer" electronic "questions" from traffic controllers on the ground, providing the controllers with a positive identification of the aircraft on their radars.

FAA awarded the contract to Wilcox in 1960 to develop a low-cost, lightweight transponder for general aviation aircraft as a means of improving aviation safety.

Similar equipment used in airline aircraft was too heavy and too expensive for most general aviation users.

In operation, FAA's ground beacon equipment transmits coded pulse inquiries to the airborne transponders. The transponder receives and decodes this pulsed query and, without manipulation by the pilot, replies in code to the ground station. The ground beacon receives the reply, decodes and processes it for display on the air traffic controller's radar scope.

The payment by Wilcox to FAA follows an FAA policy which states: "In those cases where the national interest requires Government action in the form of Federal expenditures, those expenditures which do not accrue to the benefit of the public at large should be recovered to the maximum extent possible."

ROUTINE FLIGHT INFORMATION BY 'ROBOT' SCHEDULED FOR 72 AIRPORTS

Automatic Terminal Information Service (ATIS) now operating at 13 of the nation's busiest airports will be extended to another 59 airports, the Federal Aviation Agency announced.

The continuous ATIS broadcasts ease controller workload, reduce radio frequency congestion, and permit pilots to obtain routine noncontrol information at times when duties are least pressing.

The broadcasts relieve airport traffic controllers of issuing routine information repetitively to each arriving and departing pilot, thereby providing more time for actual control duties. Broadcasts are recorded on magnetic tape, giving ceiling, visibility, wind direction, barometric pressure, runway in use and other pertinent data. Information is updated or revised whenever conditions in the terminal area change significantly.

The broadcasts will go out over voice channels of existing VORs (Very High Frequency Omnidirectional Radio Range) on or near the airport, ILS (Instrument Landing System) localizer voice channels, and, in some cases, on separate VHF radio frequencies.

Arriving pilots, tuning to the correct frequency, receive the broadcasts several minutes prior to initial contact with the approach control facility of the control tower. Departing pilots get the information before leaving their gate positions.

FAA air navigation aids transmitting ATIS messages will be listed in the *Airman's Information Manual* and shown on instrument approach charts and sectional maps.

ATIS equipment is currently operating at the following 13 locations: Chicago (O'Hare), New York (Kennedy), Los Angeles, Dallas (Love Field), Atlanta, Washington (National), San Francisco, Houston, Miami, Denver, Boston (Logan), Van Nuys, and Honolulu.

Similar equipment will be installed and used at the following airports: St. Louis, Long Beach, Newark, New York (La Guardia), Philadelphia (International), Kansas City (Municipal), Cleveland (Hopkins), Fort Lauderdale, Oakland, Columbus, Tulsa, Portland, Ore., Pittsburgh (Greater), Sacramento, Charleston, S. C., San Jose.

Andrews AFB, San Juan (International) P.R., Baltimore, El Paso, Dayton, Salt Lake City, Birmingham, Ala., White Plains, Seattle (Boeing Field), San Antonio (International), Burbank, Milwaukee, Little Rock, Charlotte, N. C., Syracuse, San Diego (Lindbergh), Oklahoma City (Will Rogers), Nashville, New Orleans (Moisant), Orlando, Austin, Covington (Greater Cincinnati), West Palm Beach, Santa Ana, Santa Monica, Phoenix, Minneapolis, Detroit (Metropolitan), Memphis, Albuquerque, Opa Locka, Wichita, Indianapolis, Detroit (City), Las Vegas, Jacksonville, Chicago (Midway), Des Moines, Torrance, Calif., Hawthorne, Calif., Fullerton, Calif., Omaha, Tampa.

PENNSYLVANIANS VISIT WASHINGTON CENTER

Pottstown (Pa.) Aircraft Owners and Pilots Club members and friends accepted FAA's standing invitation to all pilots to visit FAA facilities. A flying caravan of 75 of them in 26 airplanes spent the day touring the Washington Air Route Traffic Control Center at Leesburg, Va., after landing at Godfrey Airport. All pilot groups are welcome at towers and centers. Make arrangements in advance.

Atlanta Airport Man in the Middle Offers $400 Million Air Show

The cheery tinkle of the cash register is providing fair competition to the whoosh and roar of giant jet air carriers which practically scrape the shingles from the roof of an enterprising Atlanta restauranteur.

His caravansary is located at about the middle marker of the instrument runway at Atlanta Airport, which to many would be regarded as a high decibel area.

A man who knows a fact of life when he not only sees but hears one, this boniface advertises his place as the only one in the world featuring, at absolutely no cost, a "$400 Million Air Show (conservative value of big jets flying 300 feet directly overhead 24 hours-a-day!)."

49 Aviation Publications Are Included in New List Available Free from FAA

A list of 49 scientific and technical reports available to the public was released last month by the FAA.

The list, available without charge from the FAA, IS-10, Washington, D. C. 20553, covers May 1965 to September 1965 and updates an earlier list announced in May 1965. Subject areas cover air traffic, navigation, communications, airports, weather, and aircraft.

Copies of these reports may be ordered from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Va. 22151. Orders should include the publication number, title, and check or money order made payable to the Clearinghouse for Scientific and Technical Information.

Scientific and technical reports from all Government departments and agencies, including the FAA, are announced semimonthly in the publication *U. S. Government Research and Development Reports Abstract Journal for Science and Industry*. Annual subscriptions are $15 and the single copy price is $1, with remittances payable to the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.

WICHITA / Where the Bumper Crop Is Airplanes

If the notion should ever seize the city fathers of Wichita, Kan., to redesign the city's seal, they might well consider including a silver plane soaring high over the cowboy and prairie on the present emblem.

Business is booming in general aviation and Wichita is responsible for a lion's share of it. With ample justification, the citizens respond readily to the title "The Airplane Capital of the World." It's a place where private and business airplanes roll endlessly off assembly lines in a wide variety of models ranging from low-powered single engine craft to swift executive jets.

Major aircraft plants in Wichita are Cessna Aircraft Co., Beech Aircraft Corp., Lear Jet Corp., and Boeing Airplane Co., though the latter cannot be counted as general aviation since it does chiefly military work.

When the Federal Aviation Agency's Engineering and Manufacturing Office in Wichita recently tallied up the figures, the city produced 5,245 civil aviation planes in the first 10 months of 1965. That's something like 17½ craft a day and 34 more than were sold by Wichita companies in the entire previous year. The 1965 figure includes 4,197 single engine craft and 1,048 twins.

A further breakdown shows that Cessna turned out 3,563 single engine planes and 588 twins. Beech produced 634 singles and 396 twins, and 64 twin jets were built by Lear Jet.

The FAA *Census of Civil Aircraft* shows a total of 88,742 active general aviation aircraft in the United States as of Dec. 31, 1964. Total unit sales for Wichita companies from 1955 through 1964 were 39,861. While some of these planes are no doubt inactive, the contribution of the Wichita industry is underlined by the statistics that show that nearly half of the total active aircraft civil fleet was built in Wichita in the past decade.

Not included in these figures are 78 single engine planes manufactured by Alon Manufacturing Co., of nearby McPherson, Kan., and 32 manufactured by Mid-States Manufacturing Co., of Pittsburg, Kan.

3

The boom in general aviation aircraft is typified in Wichita by the Beechcraft King Air assembly line (1) and the Debonairs and V-tailed Bonanzas being prepared for foreign as well as U. S. customers (4); by the Lear Jets on the runway (2) and in production stage (6); by the busy Cessna factory (3); and by the distributor-wing airplane under development by Aerial Distributors, Inc. (5). This plane has two engines, the lower of which drives seed, fertilizer, or dust through a duct system and over the ailerons. The lower engine also works with liquid, and is designed to lay a 52-foot swath at 120 m.p.h. (See pages 8-9 for crop dusting story.)

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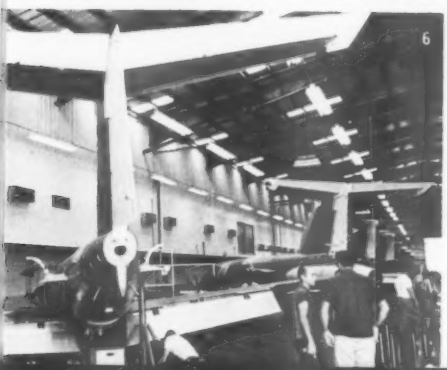

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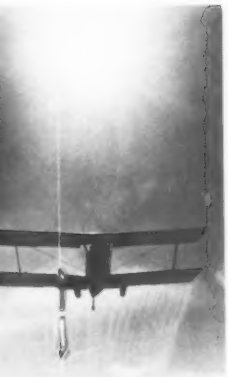
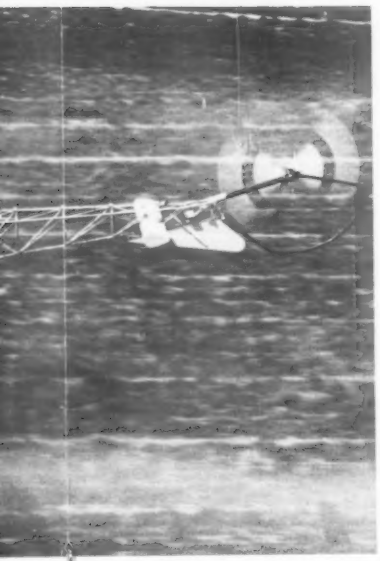
Photo by N. Z. F. S.

5

6

1 Ted Venegas with his modified Stearman, a craft much used in crop-dusting. **2** A Cessna Agwagon tries out "quick-dump" valve. **3** Grumman Ag-CAT, one of the newer breed of crop-dusting planes. **4** Bell Trouper lowers the boom on bugs. **5** Cessna Skywagon swoops in over tall pines to begin sweep. **6** Ag-CAT gets right down on the deck for efficient application.





LOW AND SLOW

America's 4,000 agriculture pilots fly a million hours annually keeping 30 million acres free of pests

BLITZKRIEG ON BUGS

Trailing a billowing veil of insecticide, the Stearman swept down the half-mile-long rows of plants, skimming their tops by less than a yard.

Methodically, swath by swath, the plane coated the California field with a thin film of insecticide, insuring another bumper bean crop for America's tables.

Before the biplane touched down at Oxnard Airport, in the heart of one of America's most important agricultural areas, it came in low and slow, its speed and configuration reminiscent of the helmet-and-goggle era.

In many of America's "breadbasket" areas hundreds of planes fly from dawn to dusk every flyable day in the growing season in the never-ending fight to keep insects from beating the American consumer to the dining table.

Who are the crop dusters? How important is their work? How hazardous is their job?

There are more than 4,000 crop-dusting pilots in the United States—more than a thousand of them in the west alone. About five per cent of America's commercial pilots are engaged in agricultural flying. These pilots flew close to a million hours last year. They kept the bugs off more than 30 million acres of prime cropland.

It is easier to say what the crop-duster *is not* rather than what he *is*. At one time, it's true, crop dusters were a breed apart. Some of them were flying gypsies who followed the crops, ever on the move. Sometimes they were highly unreliable.

This image no longer applies. Modern crop dusters usually settle and stay in the communities where they work. They are hard-working family men, highly trained and dedicated to their jobs.

There is nowhere near the turnover in pilots that blighted agricultural aviation in the early years, according to Channing C. Sargent, FAA general aviation district office inspector at the Van Nuys, Calif., office, who keeps a careful watch on crop dusting activity in the Oxnard district.

"Today's operators are very fussy," he said. "They get and keep good pilots. I know one highly qualified flight instructor who tried to get crop dusting work for more than a year before he was hired—and then he had to start as an apprentice."

Theodore (Ted) Venegas, who is in charge of aviation activity for the firm of T. F. McLoughlin Dusters in Oxnard, is typical. Since he came to work for the firm in 1951, he has, without serious mishap, dusted thousands of fields producing beans, avocados, lemons, oranges and other crops. Stocky, serious and decisive, he credits his firm's safety record to strict attention to details—mechanical, operational and human.

McLoughlin's three modified Stearmans and one Grumman *Ag-CAT* are given meticulous daily once-overs whenever in use. Pilots always wear shoulder harnesses and hard hats. There has been virtually no turnover in personnel, Venegas points out. His pilots prove themselves and they stay. One exception was a young fellow who failed his probation about two years ago when he refused to fly low enough for the spray to be effective.

Venegas has been flying for more than 30 years. He first did crop dusting over fields hacked out of the Venezuela jungles. "In that country, when you go down you stay down," he observed.

In the view of Venegas and other veteran agricultural fliers, crop dusting aircraft are really "tractors with wings." They differ mainly in speed. Both have a vital agricultural job to do—and they do it efficiently.

Though planes can spray a hundred acres while ground rigs cover just one or two, planes, by comparison, move just as slowly as their grounded counterparts. An automobile driving along a field being dusted can easily keep pace with an agricultural plane—and teenagers often delight in doing so.

Few accidents occur as a result of low flying during swath runs. Many "ag" accidents are the result of tight turn-arounds made by pilots in a hurry. Fatigue also is a hazard for ag pilots. Crop dusting is a highly competitive business and pilots are often paid according to the amount of work they do. They are working against a deadline because crops should be sprayed only at certain times during the growing process. This combination of rush and fatigue breeds accidents.

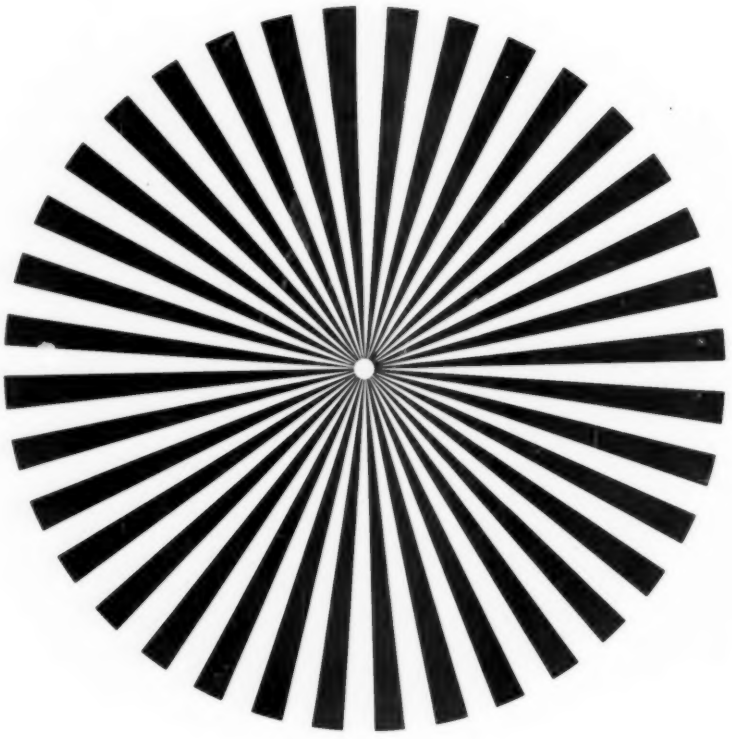
In a continuing effort to keep accidents to the minimum, the FAA places great store in education and enforcement of pertinent regulations. In the Western Region alone, there are 16 general aviation district offices concerned with crop dusting and spraying.

Effective Jan. 1, 1966, a new *Federal Aviation Regulation* (Part 137) covering agricultural aircraft operations takes effect (*FAA Aviation News*, August 1965). Under this regulation an applicant for an agricultural aircraft operator certificate must pass comprehensive tests on his knowledge of agricultural materials and their use. He must pass tests on agricultural flying skills, showing understanding of safe aircraft operation and proper handling and dispensing of crop dusting chemicals.

While the ag pilots continue their successful air attacks on agricultural pests, the FAA continues its efforts to make their jobs safer day by day, every day of the year.

noise!
something **is** being done about it

The FAA
and the aviation industry
are tackling the problem
of **aircraft noise**
in a three-pronged attack
to achieve
a quieter tomorrow



It was January 1928. Only a few months earlier, Lindbergh had completed his solo flight across the Atlantic to become the idol of two continents. Now thousands scrambled to emulate him. Within a year, applicants for pilot certificates jumped from 1,800 to 5,500 and the number of licensed aircraft from 1,100 to 4,700. Aviation was coming of age.

But not everyone was enamored by the airplane. At least one man—the owner of the Cackle Corner Poultry Farm in Garrettsville, Ohio — considered it a nuisance.

"I am a poultry raiser keeping about 2,500 leghorn hens," the farmer wrote the Postmaster General of the United States. "About once in every two or three weeks an airplane, sometimes it is a U. S. mail plane, flies over my place so low that the hens become so frightened that they pile up, thus injuring each other, and my egg yield drops 100 to 200 eggs per day. By the time I get them back to normal along comes another low flying machine and sends the egg yield down again. I dare say a small flock would not be harmed as much as the larger flocks, but the loss to me is so great that I fear it may put me out of business, and I wondered if the planes could not be requested to fly higher."

The Postmaster General forwarded the letter to National Air Transport, Inc., a private company operating the New York-Chicago air mail route under Government contract, suggesting that its planes "ascend a little higher" on reaching Garrettsville. Nothing further was heard from the poultry farmer.

During the next two decades, the sounds of aviation grew steadily louder as larger, faster, and heavier aircraft were introduced into service. The volume of air traffic also experienced spectacular gains during this period.

As a result, aircraft noise became a subject of increasing concern to responsible people in the aviation community. In the '40s, an administrator of the Civil Aeronautics Administration (predecessor of the Federal Aviation Agency) labeled it a "threat" to aviation progress and called for a joint Government-industry effort to devise corrective measures.

Still, little was done. Then in late

1958, the U.S. airlines began flying jets. A new dimension was added to the problem of aircraft noise.

Since it opened for business on the final day of 1958, FAA has pursued a vigorous and productive noise abatement program in close cooperation with industry and other Government agencies—especially the National Aeronautics and Space Administration. The FAA invested more than $1.2 million in noise research in fiscal years 1964 and 1965 alone.

FAA's noise abatement program has three major objectives: (1) move noise away from people, (2) keep people away from noise, and (3) reduce noise at its source.

Considerable progress has been made in achieving the first objective. Changes in flight operating procedures have been very effective in reducing aircraft noise intrusion into a community. The cooperative efforts of pilots, airport and airline operators, and the FAA have produced procedures that minimize the nuisance to airport neighbors and are generally accepted as safe and economical.

Whenever possible, for example, airport approach and departure traffic is routed over water or over uninhabited or thinly-populated areas. The preferential runway system also is used at many airports to concentrate take-offs and landings on those runways which offer the least noise problem.

The second objective—keeping people away from noise—involves land use compatibility in the vicinity of airports. Many present airport-community noise problems can be traced directly to a lack of planning.

Originally, it should be remembered, airports were located in sparsely-populated sections. Even as late as 20 years ago, airports were seldom found within the bounds of an established community. Today, these same airports are surrounded by apartment projects, housing developments, and shopping centers.

Neither FAA nor any other Federal agency has the authority to zone property in the vicinity of airports. However, in administering the Federal-Aid Airport Program, which began in 1946, FAA requires assurance from local sponsors that "appropriate" action has been taken "to the extent feasible" to assure comprehensive planning for compatible land use. The Agency also works closely with the Federal Housing Administration, the Veterans Administration, and the Urban Renewal Administration to discourage residential development in noise sensitive areas.

FAA offers assistance to local governments in comprehensive land use planning and zoning in the vicinity of airports. It has encouraged the preparation of information that can be used by communities for guidance in the development of land in the vicinity of airports that has not yet been put to use. Information produced in studies sponsored by the Agency identifies noise levels at various points from an airport and summarizes the manner in which communities have reacted. The principal of this data is in connection with undeveloped land, because land that already has been developed involves factors not included in such studies. Other private studies seek to develop safe, new operating procedures that would further minimize noise and develop acceptable criteria for rating noise.

Finally, the Agency supports research in noise reduction at its source and encourages manufacturers to consider noise as a primary design factor in future aircraft.

Jet engine noise results from two main sources—first, from the so-called siren effect of the compressor turbine blades and, second, from the powerful blast of high velocity gases ripping into the outside air. The problem of suppressing the sound of this blast is complicated by the fact that each degree of suppression must be achieved within limits of acceptable losses of useful thrust.

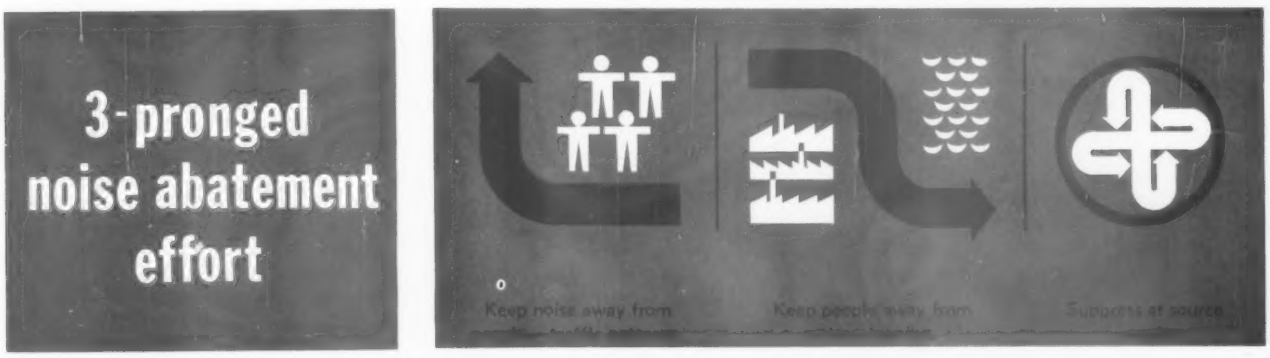
Still, progress has been made and research efforts continue with the aim of achieving additional advances if not a major technological breakthrough. Some current FAA projects in this area include:

- A two-part investigation of compressor noise.
- Development of a scale model freon compressor as a tool for the investigation of compressor acoustics.
- A study and subsequent tests of choked inlet guide vanes as a method of compressor noise suppression and acoustical treatment of guide vanes or struts as a method of compressor sound reduction.
- Development and application of extended plug nozzle noise suppression theory.

In addition to these efforts, noise factors have been a major consideration in the supersonic transport development program. A large share of the $31 million appropriated for the research phase of the program beginning in fiscal year 1962 went to engine research, and the work statement for each of these initial engine contracts included the requirement for working toward diminution and suppression of noise. This will continue to be an essential element in the SST program, and there is every indication that the SST will be able to operate at noise levels equal to or lower than those created by current jetliners.

FAA Administrator William F. McKee calls progress made to date in the noise abatement area "encouraging," but says "much work remains to be done."

"It seems highly improbable that we will be able to eliminate the unwanted sounds," the Administrator adds, "but we must search diligently for methods to reduce them to acceptable levels. With the cooperation of all aviation interests, we will continue to work toward this goal in the hope of achieving a quieter tomorrow."



SAFETY FIRST

when the mercury dives

Photo credits: Above, Aircraft Owners & Pilots Association, Washington, D. C.; right, Downie and Associates, Pasadena, Calif.

WINTER MAINTENANCE

Birds with any sense at all go south for the winter, away from the frigid, meddlesome clutches of Jack Frost. However, a goodly part of the civil air fleet of some 92,000 general aviation planes registered in the United States must stay put and flyable during the months that snow blankets the ground and freezing temperatures add a new dimension to aircraft maintenance.

In a short time span, a plane can leave one temperature and humidity level on the ground, enter another while in flight, and return to still a third upon landing. The cycle of freeze—thaw—freeze can be damaging.

Winter Preflight Tips

As part of your winter preflight, remove wind-blown snow that might have entered the fuselage. Pay special attention to the tail section and flight controls and to linkage before heating aircraft interiors. Otherwise the heat might cause the snow to melt, only to reappear as ice in flight. It's a good idea, too, to move the control surfaces in flight periodically to break up any ice formation before it becomes a deadly vise.

Condensation, turned to ice, can create hazardous strains due to expansion of the internal structure of wings, control surfaces, fuselage bulkhead areas, and other enclosed spaces. To prevent or at least minimize condensation in the fuel system, keep the tanks topped. Drain the sediment bowl before flight, particularly if the plane has been idle for any length of time.

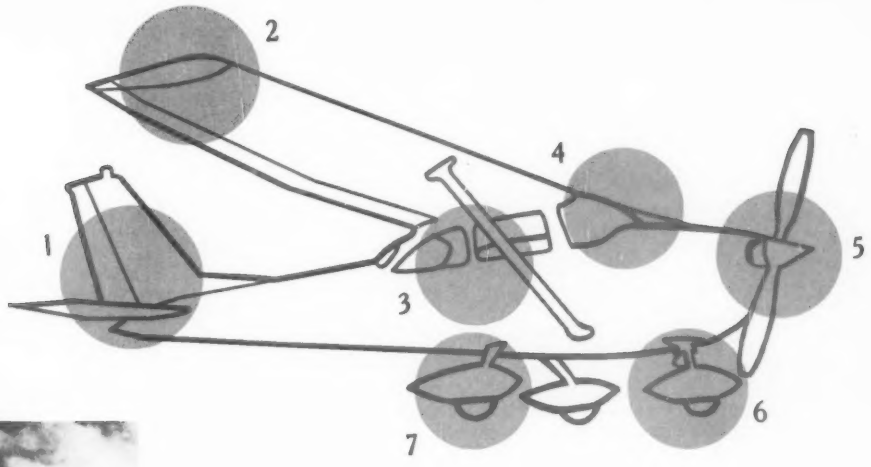
During the walk around, pay special attention to the pitot tube and the venturi, carefully removing snow and ice. Just a little bit of water, frozen in the airspeed line, can block the tube so that the airspeed indicator, sensitive altimeter, and vertical speed indicator will give incorrect readings or fail completely. When flying in snow or rain, there is the danger of "runback" which can freeze the pitot and static air pressure sources with disastrous results.

Landing gear, particularly those with wheel fairing of any kind, such as "pants," are particularly vulnerable to mud, ice, and snow. For winter operation, especially from sod or packed earth runways, the trouble involved in removing fairing from fixed gear craft is worthwhile when balanced against the potential hazard. Removing the fairing eliminates the very real possibility of mud and slush building up between tires and streamline covers.

On retractable gear aircraft, shields, boots, and curtains used to protect actuating devices, switches, and linkages demand special scrutiny. Stick with the manufacturer's recommendation for lubricating retraction mechanism.

Brush Off Snow

Snow should be removed from surfaces with a broom or soft brush, taking care not to bang antennas and other protuberances. Brush snow and ice out of clearances between flight surfaces and hinges. Finish up by applying an approved deicing fluid, spraying from the top down and from nose and leading edge of wings aft. Slush resulting from this operation should be cleared away from all control surface cavities since



WALK AROUND CHECKLIST

1. Check for ice in control surfaces.
2. Navigation lights get more use in winter.
3. Make sure cabin seal is tight—keeps wind-blown snow out.
4. Unobstructed view is safety first—clean all windows.
5. Air inlets are natural places for snow and ice to accumulate.
6. Check shocks, retractable gear in appropriate cases.
7. Clean out all slush, snow, and ice from wheel fairing.

these may later freeze solid, immobilizing the controls.

(*Note:* Most deicing fluids are a mixture of ethelyne glycolpropylene glycol. It is somewhat toxic. Avoid getting it on the skin or in your eyes. It should not be used in heat and vent systems since it may produce toxic fumes.)

The aircraft performance during takeoff with snow, frost, or ice on the wings cannot be predicted. The craft often becomes unmanageable shortly after leaving the ground. Even a thin deposit on the wings or tail surfaces can cause difficulties. Keep the surfaces as clear of ice and snow as possible.

Preheat Engine and Oil

Oil gets sluggish in cold weather and an engine may build up excessive pressure immediately after starting. This may strain the lines and connections between the oil tank and engine. Preheat both engine and oil, using an approved heater. Never use an open flame of any kind. Pull the prop through a few times before firing up.

The time for carburetor heat is *before*, not after, the ice begins to form. Unless carburetor heat is used in ground runup and taxiing, the cylinder head temperatures may be too low to completely vaporize the fuel. Raw fuel accumulation may foul the spark plugs, causing misfire during runup or takeoff.

All engines adjusted for proper mixture control at sea level will run too lean in cold weather. Carburetor heat applied during takeoff and flight enriches the mixture because of the reduced ram of air and higher inlet temperature. The higher air temperature will give more complete vaporization of fuel. However, excessive carburetor heat can cause detonation and possible damage to the engine.

Little CO Goes Long Way

Of primary importance is the cabin air heating equipment. It's well worth the time and effort to make regular—summer and winter—inspections of the entire exhaust system. Carbon monoxide (CO), a product of incomplete combustion, is a colorless, odorless, tasteless, and highly poisonous gas. A little bit of CO goes a long way—as little as 0.06 per cent concentration in the blood system can cause unconsciousness within two hours. Depending on the physical condition of the pilot, 0.1 per cent can result in death within an hour. Any deterioration in the heating system is a wide open invitation to an accident (*FAA Aviation News*, October 1965).

Things to look for during inspection of the cabin heating system—worn or defective exhaust stack slip joints, exhaust system cracks or holes, openings in the engine firewall, "blowby" at the engine breather, defective gaskets in the exhaust manifold, defective mufflers, and inadequate sealing of fairing around strut fittings on the fuselage or cabin.

Winter flying is often more hazardous than fair weather flying. Recognition of this fact is the first step in safe flying when the temperatures drop and snow blankets the landscape. A safe flight begins on the ground, with the elimination of mechanical hazards. This is a job for *both* the mechanic and the pilot.

Corrigan - Wrong Way the Right Way

This is the third of a series.

He was, in the best and most wonderful sense of the word, an aviation bum. He had spent most of his youth flying airplanes, fixing them up, barnstorming, and giving flying lessons. His finest hour found him dressed in oil-stained pants, leather jacket, and open shirt. In the middle of the depression, when he and everyone else had little money, he bought a Curtiss *Robin* which could barely get off the ground. His name was Douglas Gorce Corrigan.

Doug Corrigan was slim and small-set. He impressed people with his quiet, retiring ways—something like Lindbergh, as people were to recall later. He seldom boasted and when he did achieve fame, it was his easy smile and winning ways that made him as popular as the feat itself.

His flight began when he left Floyd Bennett Field, then New York City's municipal airport, at 5:17 Sunday morning, July 17, 1938, with 320 gallons of gas in the tanks. The machine was heavy and he had to run about 2,500 feet to take off. It was a slow business, but he got off without a hitch. Then, flying by compass, he headed for California—or so he said later.

When up about 5,000 feet he came into a bank of clouds. For almost 26 hours he was in clouds—all the time at an altitude of 5,000 to 6,000 feet. He was well on his way to California—so he said later.

It was impossible to try to get his bearing from anything around him, so he just flew by compass and only came down to 1,500 feet when he ran into rain. He caught a glimpse of the water then, but he climbed back to 5,000 feet.

The light was good when he came down again, and the first things he saw were fishing boats. About a half hour later he sighted the land. When he saw the layout of the country and the little white houses dotted here and there he realized it did not look like what it should look like—or so he said later. He kept on over the land and hit water again.

He decided to hug the coast line until he struck some big town. The old bus was running fine and he had no worries. He was, however, feeling just a little sleepy and was deaf in both ears from the noise of the engine. Along the coast he sighted several small towns, but kept on until he came over the city.

It took him some time coasting around to find an airfield. The ship came down nicely, and there he was—in Dublin, Ireland, and not Los Angeles, Calif. The flight time was 28 hours and 13 minutes.

"Wrong Way" Corrigan made his flight just after Howard Hughes had finished his three and three-quarter day trip around the world in one of the most modern airplanes of the day. Aviation was becoming so advanced that airplanes often crossed the Atlantic searching for the best routes for commercial schedules that soon were to be set up.

Corrigan's trip, then, was amazing for the shabby equipment that he was able to succeed with—and his nerve and luck—rather than for any scientific contribution to flying.

Built in 1929, two years after the "Spirit of St. Louis," Corrigan's plane was powered by a 165 h.p. Wright Whirlwind J-6 engine. No radio or instruments for flying blind were on the plane, only a rudimentary instrument panel (altimeter, airspeed indicator, inclinometer, bank and turn indicator) and an obsolete floor-mounted spirit compass.

The "Corrigan Clipper" was barely flyable when Corrigan bought it in 1935, and had to be rebuilt and remodeled. After the remodeling, so much space had been used in the cockpit for extra fuel tanks that the windshield was blocked, and to see ahead Corrigan had to flip the "Clipper" around and look out its side windows. But with the extra fuel tanks, the plane could travel almost as far as the "Spirit of St. Louis" had. Corrigan, incidentally, had helped to build Lindbergh's plane in California. Ever since Lindbergh had flown the Atlantic in 1927, Corrigan had modeled himself on the Lone Eagle, according to Corrigan's family. Perhaps it was the attraction of this hero that had thrown the compass of the "Clipper" off. Then again money and fame—though Corrigan was slow to take them up—might also have affected the compass.

Whatever the motive, Corrigan's flight was more than a splendid show of airmanship, nerve, and luck. It distracted a world saddened by the Great Depression and scared of the fast approaching World War. It captured the imagination of the world and served as yet another spur to the development of aviation. It provided, too, a page in history for Corrigan who later returned to California, married, and had children. During World War II he ferried planes for the Army, then tested new planes. After the war, he and a friend started an air transport service with a surplus C-47 and flew everything from gold to strawberries. In recent years he has lived in seclusion, like a country squire, running a 20-acre orange grove in Santa Ana.

Now in his late 50s, he has an enigmatic smile in response to the inevitable question: "Did you really get lost?"

Photo courtesy of the Smithsonian Institution National Air Museum

The press called Corrigan's plane a crate, aviation officials called it unsafe to fly at night much less cross the Atlantic, and his friends in California called it the "Corrigan Clipper."

Letters

FAA Aviation News welcomes comments from the aviation community. We will reserve this page for an exchange of views. No anonymous letters will be used, but names will be withheld on request.

• 'Copter Rules Have Him in Spin

Because of the obvious disparity in qualification between helicopter and airplane ratings, I would be interested in knowing the FAA's reasoning behind the regulations.

Only recently the requirement was increased to 25 hours for an airplane pilot to receive a commercial helicopter rating. This does not necessarily include touchdown autorotation, confined area operation, sling loads, or pinnacles—all areas common to commercial helicopter operations.

On the other hand, a pilot holding a commercial rotorcraft rating must have 50 hours in an airplane, or twice the time required for a helicopter. An airplane rating requires 10 hours practice, yet a helicopter rating calls for no proficiency in a manuever that may be required at any time—engine failure.

Corpus Christi, Texas

The Agency is aware of the inconsistencies you point out and is presently conducting a complete review of the experience requirements for all pilot certificates and ratings. We expect this review will result in elimination of inconsistent and inadequate standards.

• Aviation Who's Who

Please send me list of certified firms with irregular air carriers, flight training schools, and industrial flying.

Stoystown, Pa.

We are sending Federal Aviation Agency Advisory Circular 120-8A, "List of Air Taxi Operators;" Advisory Circular 140-2A, "List of Certificated Pilot Flight and Ground Schools;" and a list of air carriers.

• Wants Commercial License

My problem is two-fold: I would like to apply for a commercial pilot license, and I lost my private pilot license card several months ago.

Background: I was discharged honorably in the grade of captain from the United States Air Force in March 1964. I have more than 2,500 hours, most of which was logged in single engine jets. I also hold a USAF jet instrument rating.

Where do I go from here?

Bangkok, Thailand

If your private pilot certificate was issued or reissued since July 1, 1945, it is still valid. You may obtain a duplicate by sending $2 to the FAA Airman Certification Branch, Aeronautical Center, Box 1082, Oklahoma City, Okla., 73101.

Your request should include all available information about your certificate, such as the exact name in which it was issued, its number and ratings, and date of issuance.

A discharged United States Air Force pilot who has been relieved from active duty for more than 12 months, or who has not been on solo flying status as a rated pilot or the equivalent within the preceding 12-month period, must pass the commercial pilot written and flight tests in order to obtain a commercial pilot certificate.

For more specific information, contact the chief advisor of the FAA International Field Office, Manila International Airport, Republic of the Philippines. He will provide all necessary forms at the time of your tests.

• Soaring Society Seeks Help

We're asking for donations of books, magazines, papers, or anything else pertaining to the early or recent history of United States and international soaring. In some cases the Society will buy certain valuable material. For details please contact Dale S. May, 608 South Can Dota, Mt. Prospect, Ill. 60057.

The Soaring Society of America, Inc.

• IFR Procedure

In the Letters Department in the September 1965, *FAA Aviation News* you state that unless a pilot "requests" cancellation of his IFR flight plan and has his request acknowledged, ATC must assume that the flight will proceed as planned.

A pilot does not *request* ATC to cancel a flight plan—he tells them. To "request" implies that ATC people have the authority to deny the request. They do not. If the pilot is on an IFR flight plan, but flying VFR weather in other than positive controlled airspace, he may wish to cancel the flight plan. He informs ATC he is cancelling; they have no authority to make him stay on it. If the flyer is in IFR weather ATC has no authority to allow him to cancel his flight plan.

New York

Right you are, and no pilot communication other than "cancel my IFR flight plan" is required by the FARs. The applicable rule, in fact, only states that the pilot is not prohibited from cancelling an IFR flight plan if he operating in VFR weather. Thus "cancel my IFR flight plan" is an acceptable brief advisory from the pilot conveying his intended action to ATC, notwithstanding his responsibility to adhere to his IFR clearance until the message is acknowledged. The spirit and intent of the rule is to assure that the pilot transmits his intent clearly and that his message has been received.

• Dear Mr. Administrator

I am greatly honored to have been chosen to receive the FAA Certificate of Commendation presented to me . . . at the annual AOPA Plantation Party and Industry Exhibit. . . .

As I . . . (said) in accepting the certificate, no one individual could have been responsible for the success of this program. More than 600 dedicated flight instructors, many fixed-base operators, dozens of state aviation commissions and directors, as well as members of your Agency have contributed heavily to the success of this program. . . . For example, without the close supervision and assistance afforded by George Stathers of your Flight Standards Service, our highly successful AOPA 360° Rating Course-FAA Blue Seal Program would never have gotten off the ground.

Ralph F. Nelson, Project Director
AOPA Flight Training Clinic
Washington, D. C.

FAA Deputy Administrator David D. Thomas, right, presents the Agency Certificate of Commendation to Ralph F. Nelson of AOPA.

• Closing the GAPE Gap

Read your recent article in *FAA Aviation News* on GAPE. I am a member of a group of 100 aircraft owners and pilots. We hold meetings monthly and are always anxious to get speakers and film on any subject concerning flying, especially on safety. Please send particulars.

W. S. Garrett
South Pasadena, Calif.

We're glad you are interested and pleased to forward your letter to the Flight Safety Foundation which is conducting the GAPE program. Inquiries about the General Aviation Pilot Education Program should be sent directly to the Flight Safety Foundation, Inc., 468 Park Avenue, South, New York, New York 10016.

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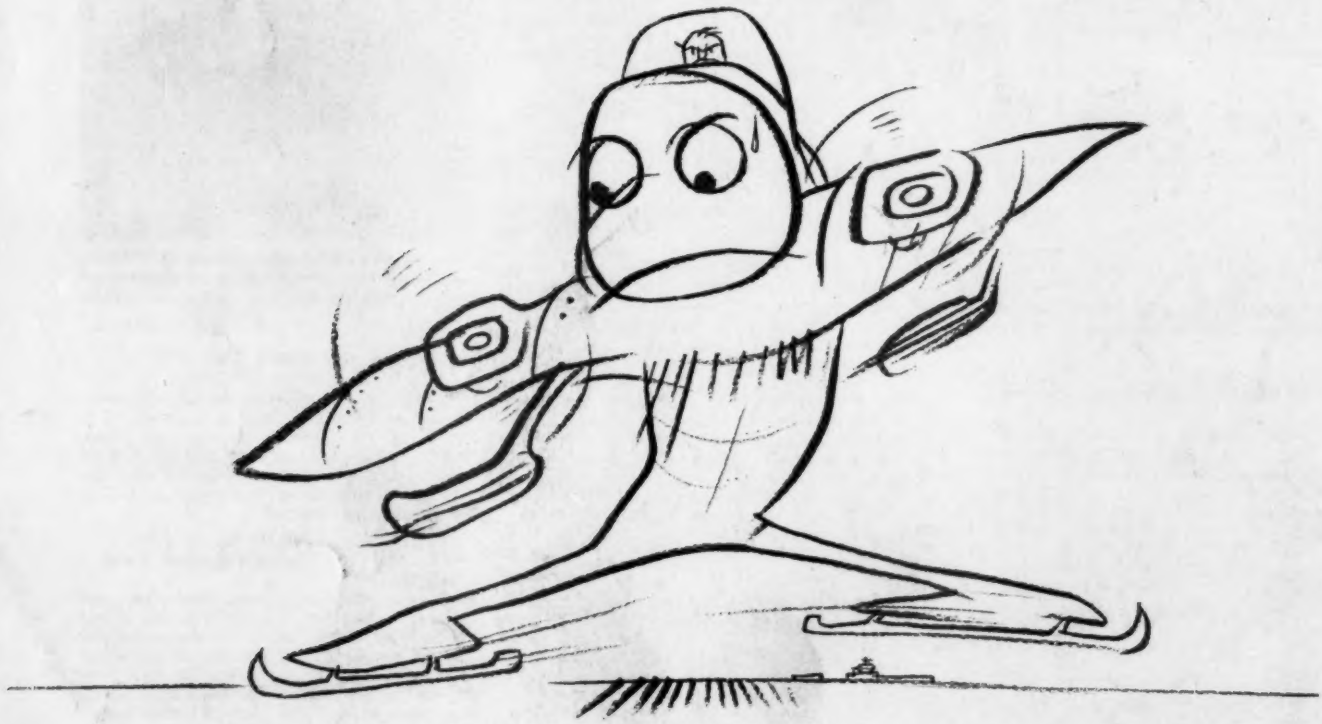

Be prepared to pay the price.